

## **Determination of Public Land (Rangeland) Health for 65031 MURDOCK WELL**

The Record of Decision (ROD) for the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (dated January 2001) adopted three Standards for Public Land Health. These are (1) Upland Sites Standard, (2) Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard and (3) Riparian Sites Standard.

The ROD also established a process for the BLM Field Offices for the implementation. Through a public participation process, the Roswell Field Office developed and adopted indicators to use in conjunction with existing monitoring data to assess these standards.

Field assessment worksheets and other available data that evaluate the local indicators were completed for this allotment. Based on these assessments, it is my determination that public land within Murdock Well, allotment #65031, meets the Upland Sites standard and (2) Biotic Communities, including Native, Threatened, Endangered, and Special Status Species standard. There are no public land Riparian areas on this allotment, therefore this standard was not addressed.

/s/Karen Kelleher  
Field Manager

5/25/07  
Date

# Standards of Public Land Health

## Evaluation of 65031 MURDOCK WELL Allotment

### [ 10/15/2005 ]

The Roswell Field Office conducted Rangeland Health Assessments at one study site within allotment #65031, Murdock Well. These assessments evaluated Soil/Site Stability, Hydrologic Function and Biotic Integrity indicators within the vicinity of this study site. Existing monitoring data was incorporated into and in support of this field assessment. A summary of this assessment is attached and shown in the following table.

Study Area or Assessment Area	UPLAND			BIOTIC			RIPARIAN		
	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet
65031-BM248-C031 (*)	X			X			N/A		

Twenty-two (22) indicators for Rangeland Health were evaluated for public land on Murdock Well, allotment #65031. Ten (10) of these assessed soil site stability, 11 hydrologic function and 13 biotic integrity. These qualitative assessments in conjunction with previous data collected on one study location within this allotment were utilized to make rangeland health determinations. Quantitative evaluations are performed by the Roswell Field Office, which include some or all of the following: ground and vegetative cover and composition, production, frequency and ecological condition. These collections which were initiated in the late 1970's/early 1980's, are scheduled and conducted approximately every 5 years. This allotment is a "C" custodial category Section 15 due to small amounts of public land present.

Two previous data collections have been performed on this study area; 1979 and 2000. Total public land area on this allotment encompasses 951 acres/385 hectares in a HP-3 Deep Sand ecological site. Soil phase is Nutivoli-Jalmar, moist fine sand, moderately rolling in the eastern parts of area surveyed. Slope is 0 to 13 percent with an elevation between 4,400 ft/1,333 m and 4,500 ft/1,363 m. This unit is 50 percent Nutivoli fine sand found on dunes with 2 to 13 percent slopes and 40 percent Jalmar fine sand in depressional and interdunal areas on 0 to 1 percent slopes. Nutivoli and Jalmar soil formed in eolian and alluvial/eolian deposits respectively. Both soil types are deep and well-drained.

There is present livestock grazing with an authorization of 20 cattle to graze yearlong at 100 percent public land. Animal Unit Months is 240. Roads and well pads dissect this pasture and those surrounding. The actual study area has been for the most part left alone although it is located right between 2 well pads. Multi-resource use is very evident here. Soil and hydrological attributes indicated only Slight to Moderate ratings and fell well within normal range of variability. Ground cover was mainly shinnery oak (*Quercus havardii*) leaves and very limited bare ground. A generous amount of organic matter is found in the soil, therefore the stability is higher than would be expected. Sand bluestem (*Andropogon hallii*) is limited here thus structural/functional groups rated Moderate. Grasses like threeawn (*Aristida spp.*) and dropseed

(*Sporobolus* spp.) have taken the place of this grass. Little bluestem (*Schizachyrium scoparium*) is abundant but short. Annual production is approximately 1/2 of its potential but has the ability to rebound due to a good seed source. Invasive plants rates Moderate to Extreme with yucca (*Yucca* spp.) common throughout. A generous stand of shinnery oak may provide brood cover for a number of upland birds.

Wildlife - Evaluation of the integrity of biotic community considered several indicators as attribute indices for the area of interest. Biotic indicators are interrelated with several other indicators, including soil/site stability, hydrologic function and vegetation. Several indicators are singularly biotic and address the vegetative aspect of the ecological site description, such as functional/structural groups and plant mortality & decadence.

In addition to the standard worksheet biotic factors, four specific wildlife indicators and descriptors are included in this evaluation. A unique assemblage of terrestrial species and avifauna can be expected to use this ecosystem. Of significance are the sand dune lizard (*Scleroporus arenicola*) and lesser prairie chicken (*Tympanuchus pallidicinctus*) known only to occur within the vicinity of this ecosystem. The vegetative community of interest is the shinnery oak-tall grass type only found in portions of this Field Office area. Key habitat components include sand bluestem, shinnery oak, sand dune lizard habitat features (dune blowouts) and lesser prairie chicken habitat features (booming grounds & nesting areas). The amount, condition and juxtaposition of these habitat features are used as habitat indicators for this assessment. This assessment begins by determining if the site is within "Core Areas" for lesser prairie chicken. Other important wildlife species and their habitats, such as desert mule deer (*Odocoileus hemionus*), pronghorn and a variety of game and non-game species are also considered in this assessment. This area of interest falls just outside the Core Area. There are no known sightings of LPC on this allotment, although potential does exist. State land parcels surrounding this allotment have had some recorded activity of LPC. Some areas do appear to provide suitable habitat for sand dune lizard. Wildlife habitat is good for those ungulates, mule deer and pronghorn as well as quail (*Callipepla* spp.). Heights of vegetation may not be suitable for LPC cover but more adaptable to lek activity as generous stands of shinnery oak dominate some areas.

In the professional opinion of Assessment Team, public land within Murdock Well, allotment #65031 meets Upland and Biotic standards. There are no Riparian issues present, therefore this standard was not addressed. See site notes and recommendations for further information regarding evaluations on this allotment.

The (\*) indicates that the assessment had one or more indicator(s) rated moderate/extreme or extreme. These indicators are:

- Invasive Plants

These indicators by themselves are not enough to rate the site as not meeting a standard but may warrant future monitoring.

**Recommendations:** Recommend LPC lek surveys for 2007 to determine whether these birds do in fact inhabit this allotment or not. Habitat fragmentation due to increased oil and gas activity

will no doubtedly impact this site in the future. Timely evaluation of this allotment should be performed to adequately assess these impacts.

Although yucca is quite common here, potential for brush problems is minimal presently and poses no real threat.



## RFOs Upland and Biotic Standard Assessment Summary Worksheet

### SITE 65031-BM248-C031

Legal Land Desc	SWNW 18 0080S 0330E Meridian 23	Acreage	951
Ecosite	077CY058NM DEEP SAND HP-3	Photo Taken	Y
Watershed	12080001020 CROSSROADS		
Observers	NAVARRO/MOE	Observation Date	02/21/2007
County Soil Survey	NM644 CHAVES NORTH	Soil Var/Taxad	
Soil Map Unit	NJC	Soil Taxon Name	NUTIVOLI
Texture Class	NM644 FS	Soil Phase	NUTIVOLI-JALMAR
Texture Modifier	NM644 FINE SANDS,MOIST		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	19.55	NOAA Growing Season Precipitation	15.86
NOAA Avg Annual Precipitation	15.73	NOAA Avg Growing Season Precipitation	13.34
Disturbances and Animal Use:	Livestock use at conservative rate. Some trailing and tracking activity. Oil/Gas facilities are heavy in this pasture. Roads are found throughout this allotment for access to well pads and facilities. Powerline also traverses this area.		

#### Part 2. Attributes and Indicators

		Departure from Ecological Site Description/Ecological Reference Areas					
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight	
S H	Rills						X
Comments:							
S H	Water Flow Patterns						X
Comments:							
S H	Pedestals and/or Terracettes					X	
Comments:							
S H	Bare Ground					X	

Comments:	Present estimate is 20%.					
S H	Gullies					X
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas					X
Comments:						
H	Litter Movement					X
Comments:						
S H B	Soil Surface Resistance to Erosion					X
Comments:	Plenty of organic matter found in interspace soil ped samples.					
S H B	Soil Surface Loss or Degradation					X
Comments:						
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff					X
Comments:						
S H B	Compaction Layer					X
Comments:	Some compaction by cattle was evident.					
B	Functional/Structural Groups				X	
Comments:	Sand bluestem found in limited amounts.					
B	Plant Mortality/Decadence					X
Comments:						
H B	Litter Amount					X
Comments:	Current estimate is 60-70%.					
B	Annual Production				X	
Comments:	700 lbs/ac or kg/ha is the current estimate.					
B	Invasive Plants			X		
Comments:	Yucca is common throughout-no other invasives other than mesquite primarily found on well pads.					
B	Reproductive Capability of Perennial Plants					X
Comments:	Only slight limitations exist.					
S	Physical/Chemical/Biological Crusts					X
Comments:	good physical crust					
B	Wildlife Habitat					X
Comments:	good deer, pronghorn, and quail habitat					
B	Wildlife Populations					X

Comments:	Good deer, pronghorn; quail fair						
B	Special Status Species Habitat					X	
Comments:	Quite a bit of little bluestem, but short-some suitable for nesting cover, but limited, with little sand bluestem. Heavy stand shin oak-good brood cover.						
B	Special Status Species Populations					X	
Comments:							

### Part 3. Summary

A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	0	0	6	4
H	Hydrologic	0	0	0	7	4
B	Biotic	0	1	2	8	2

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More Info	Meets
Soil		0	0	10
Hydrologic		0	0	11
Biotic		1	2	10

Site Notes: This site is exactly between two oil pads; we accessed this site by a ROW for a powerline which feeds the pump jacks and other facilities. This study area is just out of the LPC Core area although some leks have been recorded near here. Bluestem species dominated by little bluestem with limited amounts of sand bluestem.

Cattle use is evident here but it appears to be at conservative levels. Fresh mule deer tracks also found.